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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/575,338

04/10/2006

Toshimichi Makii

2003JP323

1811

26289

7590

07/25/2008

AZ ELECTRONIC MATERIALS USA CORP.  
ATTENTION: INDUSTRIAL PROPERTY DEPT.  
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EXAMINER

THOMPSON RUMMEL, PONDER N

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

07/25/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/575,338	<b>Applicant(s)</b> MAKII ET AL.	
	<b>Examiner</b> PONDER N. THOMPSON RUMMEL	<b>Art Unit</b> 1795	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on 07 April 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-8,11,13-15 and 17-20 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 4-6, 11,13-15 and 18-20 is/are allowed.
- 6) ☒ Claim(s) 1,3,7,8 and 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

Due to newly cited prior art, the above rejections are made non-final with the Examiner's sincere apology.

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 7, 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimori et al (US 6,207,343) in view of Doi et al (US 2002/0001769).

With respect to claims, Fujimori et al discloses a positive photosensitive composition comprising:

- A. An alkali soluble novolak (column 51, lines 9-11) in the amount no more than 50% by weight (column 51, lines 44-49);
- B. A compound which decomposes by the action of an acid to enhance its solubility in alkaline developing solution represented by formula (Ib) shown in wherein  $W_b$  is a divalent organic group such as straight-chain alkylene group (see column 7, lines 7-15) Fujimori also includes ethylene group as one of a few examples for such straight-chain

alkylene group (col.4, lines 8-11). R1b and R2b may be a H atom or an C1-4 alkyl group. Thus, it would have been obvious to one skilled in the art to have Wb to be an ethylene group, R1b to be C1-4 alkyl group and R2b to be H atom with a reasonable expectation of obtaining a positive photoresist composition excellent in the shape of pattern profile and high resolution. The compound of formula (Ib) is present in the amount between 10-30% by weight of the total composition (column 49, lines 50-56);

- C. An acid generator in the amounts of 0.01 to 20% by weight (column 73, lines 20-29);
- D. A photosensitizing agent (column 76, lines 20-40)
- E. An alkali soluble resin (which is incorporated to enhance sensitivity) which examples include carboxyl group-containing methacrylic resin and derivatives thereof (see col.50, lines 20-22, and lines 44-54).

Although Fujimori et al do not disclose the present alkyl group "R" having 3 to 10 carbons, since Fujimori's alkyl group R1b has 1 to 4 carbons atoms and since those two ranges overlap, Fujimori's teaching renders present range of 3-10 carbons prima facie obvious. In the case where the claimed ranges "overlap or lie

Art Unit: 1795

inside ranges disclosed by the prior art” a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

Additionally, Fujimori et al fail to disclose the use of a photosensitizing agent (D) comprising a quinonediazide group within the resist composition.

Doi teaches a composition containing an acid labile resin and a photoacid generator, and the composition additionally contains a quinonediazide ester using it as a sensitizer (see [0054]). Doi teaches that by using such quinonediazide ester compound (as sensitizer); one can obtain a positive composition that is excellent in sensitivity and definition in the photolithographic process using i-ray (see [0056]). Since Fujimori already teaches (col.76, lines 20-25) that a sensitizer can further be added in his composition so as to render the composition sensitive to an i-line, it would have been obvious to use Doi’s sensitizer in Fujimori’s composition in order to obtain a positive composition that is excellent in sensitivity and definition in the photolithographic process using i-ray.

***Allowable Subject Matter***

3. Claims 4-6, 11, 13-15 and 18-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form

Art Unit: 1795

including all of the limitations of the base claim and any intervening claims.

Claim 4 and 5 are allowable because none of the prior art such as (Fujimori and Doi) discloses the use of those resins of claims 4 and 5. Further, the vinyloxy ester compound as claimed by applicant within claim 6 is not taught in the cited prior arts. Claims 11, 13-15 and 18-20 are all dependent upon claims 4-6 and are allowed for the above reasons.

### ***Response to Arguments***

4. Applicant's arguments, see REMARKS, filed April 7, 2008, with respect to the rejection(s) of claim(s) 1,3-8, 11, 13-15 and 17-20 under 35 U.S.C 103 (a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made over Fujimori et al (US 6,207,343) in view of Doi et al (US 2002/0001769).

5. Although applicants argue that Fujimori does not teach structural unit of present formula (I), as explained above, in Fujimori's formula (Ib),  $W_b$  can be a divalent organic group such as ethylene group. Also, in Fujimori's formula (Ib),  $R_{1b}$  and  $R_{2b}$  may be a H atom or an C1-4 alkyl group. Thus, it would have been obvious to one skilled in the art to have  $W_b$  to be an ethylene group,  $R_{1b}$  to be C1-4 alkyl group and  $R_{2b}$  to be H atom with a reasonable expectation of obtaining a positive photoresist composition excellent in the shape of pattern profile and high resolution.

***Conclusion***

6. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PONDER N. THOMPSON RUMMEL whose telephone number is (571)272-9816. The examiner can normally be reached on Monday-Friday 7:00 am - 4:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1795

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. N. T./  
Examiner, Art Unit 1795

/Sin J. Lee/  
Primary Examiner, Art Unit 1795